

Application No. 09/827,985
Amendment dated July 8, 2003
RESPONSE TO OFFICE ACTION dated April 10, 2003

REMARKS / ARGUMENTS

The action by the Examiner in this application, together with the references cited, have been given careful consideration. Following such consideration, claims 1-7 have been canceled, and claims 8 and 14 have been amended to define more clearly the patentable invention Applicant believes is disclosed herein. The specification has also been amended to list the U.S. Patent No. issuing from the previously cited U.S. patent application.

The present invention relates to joined current collectors in a multi-layer cell. As noted in the specification, it is not unusual for multi-layer cells to have ten (10) or more cathode current collector tabs that must be joined together and attached to a cathode lead. Similarly, the battery would have five (5) or more anode current collector tabs that must be joined together and attached to an anode lead. A problem with joining large number of tabs together is the stress exerted on the tabs and current collector layers when the tabs are ultrasonically welded together and bent back towards the battery. In this respect, considerable stress may be placed upon the outer layers of tabs as they are bent around the inner layers of tabs. Excessive stress on the tabs can eventually cause them to tear away from the current collector, over time. The present invention provides a method of joining multiple current collector tabs to a battery lead, wherein stress exerted on the respective layers of the tabs are minimized.

In accordance with the present invention, the tabs are joined together at a location that is offset from the cell body, as best seen in FIG. 6A. As shown in the drawings, the tabs are collected at a location outside the surfaces of the cell body. The tabs are welded together at this location, and then folded around an axis, designated "A" in the drawings. Axis A is located between the surfaces of the cell body. By assembling the collector tabs at the location shown in

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FIG. 6A, little or no stress is placed upon the outermost tabs when the welded assembly is rotated around axis A. In this respect, collecting and welding the tabs at a location offset from the cell body provides additional length to the respective tabs to allow the outermost tabs to wrap around the innermost tabs to form a smooth, layered structure with little or no stress placed upon the outermost tabs.

Claims 8 and 14 have been amended to indicate that the tabs are welded together when the tabs are stacked together at a location offset from the cell body, such that when the tabs are folded into a generally U-shaped configuration "about an axis within the surfaces of the cell body," the unattached intermediate portions of the tabs form a smooth layered, generally U-shaped structure. It is respectfully submitted that none of the cited references teaches, suggests or shows the unique weld configuration formed when tabs are welded together at a location offset from the cell body.

The claims stand rejected under 35 U.S.C. Section 102 as being anticipated by U.S. Patent Application Publication No. 2002/0081491 to Gross et al., JP2000-311665-A and EP 1 045 466 A1. The claims further stand rejected under 35 U.S.C. Section 103(a) in view of the aforementioned '665 Japanese reference. It is respectfully submitted that none of the cited references, alone or together, teaches, suggests or shows a tab weldment assembly as set forth in the claims. Specifically, none of the cited references teaches, suggests or shows joining tabs together at a location offset from the cell body and then folding such joined tabs into a U-shaped configuration about an axis within the surfaces of the cell body. Further, none of the cited references teaches, suggests or shows minimizes stresses in the current collector tabs by joining the tabs together as heretofore described.

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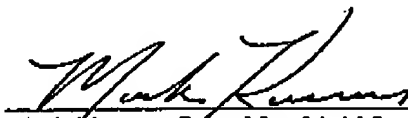
It is respectfully submitted that joining the tabs together as set forth above is not taught by any of the cited references, nor are the advantages thereof suggested in any of the references. The Examiner is respectfully requested to consider the references cited therein.

For the foregoing reasons, it is respectfully submitted that the polymer batteries set forth in the claims are not anticipated or obvious in view of the cited references. Favorable action is therefore respectfully requested.

If there are any fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0537, referencing our Docket No. PD7323US

Respectfully submitted,

Date: July 8, 2003


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I hereby certify that this correspondence (along with any paper referenced as being attached or enclosed) is being deposited on the below date with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to MAIL STOP NON-FEE AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: July 8, 2003


Christine Goellner

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